

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 23, 2011

**TO:** T. J. Dwyer, Technical Director  
**FROM:** M. T. Sautman and D. L. Burnfield, Site Representatives  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending September 23, 2011

**Facility Operations:** Several facilities had equipment problems or conduct of operations events this week.

- **Saltstone:** While grouting Tank 50 waste, operators received a low grout flow alarm and setback automatically began. While the cap on the pump vent popped off and grout sprayed from the vent, the operators manually terminated the flush, executed the process upset recovery procedure, flushed the system, and launched a “pig” to clear the grout line to the vault. An estimated 260 gallons of salt solution spilled on the floor, causing whole body dose rates up to 150 mrem/hr and smearable surface contamination levels up to 20 mrad/hr/100 cm<sup>2</sup> βγ. Engineers are reviewing process data to determine why the peristaltic grout pump hose failed. Meanwhile, workers are decontaminating the process room and preparing to replace the grout pump. The facility has not found any plugs in the system so far.
- **H-Canyon:** As part of the investigation of unexpected contamination levels in the warm canyon sample aisle, management identified that an operator had replaced a sample needle, but had “N/A’ed” the steps that document implementation of the Technical Safety Requirements to wear puncture-resistant gloves and use engineered safety equipment (a wrench). The operator, performing this activity for the first time in the field, stated he wore the gloves, but did not think he needed to use the wrench because the nut was already loose. These contaminated needles pose a significant puncture hazard.
- **L-Area:** While performing a walk down of the L- Area disassembly basin, SRNS criticality safety engineers found that a criticality safety block had been moved on at least two separate instances in violation of the controls in place in the nuclear criticality safety evaluation (NCSE). While in this case the safety margin was not diminished, a similar violation involving movement of similar blocks could have. To complicate matters, the criticality safety engineers failed to notify the shift operations manager that this condition existed for several days. Once notified, the L-Area facility manager took the necessary immediate actions to stop fuel movement until the issue was resolved. Longer-term actions are in development to ensure that the NCSEs correctly specify the necessary controls, that criticality safety blocks that are not permitted to be moved are permanently identified, and to ensure that appropriate operations personnel understand the actions that are being taken.
- **Defense Waste Processing Facility shipment to the Solid Waste Management Facility (SWMF):** SRR (DWPF) shipped another box of waste to the SWMF with higher than expected radiation readings (60 mrem/hr on the bottom of the box). Because SRR has had several similar shipments within the last few months, SRR issued a standing order to have all shipments from SRR to the SWMF to be placarded, to be escorted by radiological protection personnel, and be surveyed upon arrival at SWMF.
- **235-F:** During a planned fan rotation, an exhaust fan did not start during the initial attempt. Furthermore, the diesel generator auto started due to undervoltage, but did not load because normal voltage quickly returned. Engineers are still investigating the cause(s) for these events.
- **WSB:** Waste Solidification Building construction personnel using a manlift contacted a 480 volt cable with the lift and stretched the cable so that the outer layer of insulation was broken. No one was injured since the inner layer of insulation was not seriously damaged. The cable was replaced and procedures were revised to require spotters when lifts are being moved.

**Nuclear Safety:** SRNS declared two Potential Inadequacies in the Safety Analysis. The Savannah River National Laboratory (SRNL) identified problems with how the Building 773-A water demand for its sprinkler system and the amount of fire water available in the A-Area water storage tank were calculated. At the F/H Analytical Laboratory, the Documented Safety Analysis did not acknowledge that a beryllium analysis could generate hydrogen gas above the lower flammability limit within small volume plastic vessels.